AMENDMENT

To : Examiner of the Patent Office

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1. Identification of the International Application
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4. Item to be Amended: Specification and Claims

5. Subject Matter of Amendment
(1) In Specification page 4, Line 9 (English translation p.4 [0011] Lines 13 – 14), "has water repellency upon ultraviolet light irradiation." is amended to

-- has water repellency upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the

fluorocarbon resin layer is completely peeled off from the substrate. --

(2) In Specification page 5, Line 8 (English translation p.6 [0015] Lines 12 – 13), "is thermally weldable." is amended to

-- is thermally weldable, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate. --

(3) In Specification page 5, Lines 17 – 18 (English translation p.6 [0015] Line 27), "is thermally weldable." is amended to

-- is thermally weldable, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate. --

(4) In Specification page 5/1, Line 4 (English translation p.6/1 [0015] Lines 47 – 48), "is water repellent upon ultraviolet light irradiation." is amended to

-- is water repellent upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate. --

(5) In Specification page 6, Lines 27 – 28 (English translation p.8 [0018] Lines 12 – 13), "is water repellent upon ultraviolet light irradiation," is amended to

-- is water repellent upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate, --

(6) In Specification page 6/1, Lines 10 – 11 (English translation p.8 [0018] Lines 30 – 31), "is water repellent upon ultraviolet light

irradiation," is amended to

-- is water repellent upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate, --

(7) In Claims page 27, Claim 1, Line 11 (English translation p.34 Claim 1, Lines 16 – 17), "has water repellency upon ultraviolet light irradiation." is amended to

-- has water repellency upon ultraviolet light irradiation, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate. --

(8) In Claims page 28, Claim 8, Line 11 (English translation p.35 Claim 8, Lines 16 – 17), "can be thermally welded to said third fluorocarbon resin layer." is amended to

-- can be thermally welded to said third fluorocarbon resin layer, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate. --

(9) In Claims page 28, Claim 9, Line 13 (English translation p.35 - 35/1 Claim 9, Lines 19 – 20), "can be thermally welded to said third fluorocarbon resin layer." is amended to

-- can be thermally welded to said third fluorocarbon resin layer, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate. --

(10) In Claims page 29, Claim 19, Lines 4 – 5 (English translation p.36

Claim 19, Lines 5 – 6), "is water repellent upon ultraviolet light irradiation." is amended to

-- is water repellent upon ultraviolet light irradiation, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate. --

(11) In Claims page 29/1, Claim 25, Line 4 and page 30, Claim 26, Line 11 (English translation p.38 Claim 25, Lines 15 and p.38/1 Claim 26, Lines 17), "is water repellent upon ultraviolet light irradiation." is amended to

-- is water repellent upon ultraviolet light irradiation, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate. --

6. List of Attached Documents

(1) Specification substitute sheet pages 4, 4/1, 5, 5/1, 6, 6/1 (English translation substitute sheet pages 4, 4/1, 6, 6/1, 6/2, 8, 8/1, 8/2)

(2) Claim pages 27, 28, 28/1, 29, 29/1, 30, 30/1 (English translation substitute sheet pages 34, 34/1, 35, 35/1, 36, 38, 38/1).

the ultraviolet light (hereinafter the abbreviated term UV to be appropriately used) irradiation.

Disclosure of the Invention

[0010] The first purpose of the present invention is, considering the above mentioned problem, to offer a new photocatalyst sheet in which substrates coated with fluorocarbon resin are readily weldable mutually, and also of a high antifouling property by coating the outermost surface of film/fabric structure with fluorocarbon resin containing photocatalyst and the method of manufacturing the same.

The second purpose of the present invention is, with reference to the above-mentioned problems, to offer a new photocatalyst sheet in which the uppermost surface of a substrate is coated with fluorocarbon resin layer containing a photocatalyst, said uppermost surface has water repellancy, and which has a high antifouling property when UV is irradiated on said uppermost surface, and the method of manufacturing the same.

[0011] In order to achieve the above mentioned first and second purposes, the first embodiment of the present invention is characterized in that the structure of a photocatalyst sheet of the present invention comprises: a substrate made of glass fiber; a first fluorocarbon resin layer made of PTFE coated on said substrate; a second fluorocarbon resin layer made of either one of PTFE, FEP, or PFA coated on said first fluorocarbon resin layer; and a third fluorocarbon resin layer made of FEP containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on said second fluorocarbon resin layer, of which said photocatalysts have the part exposed on said third fluorocarbon resin layer, and the ratio of said photocatalysts in said third fluorocarbon resin layer is 10 – 60 weight %, and the surface of the fluorocarbon resin layer containing said photocatalysts of said photocatalyst sheet has water repellency upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate.

In the embodiment described above, the surface state of the substrate made of glass fiber is preferably either smooth, rough, or mesh-like. The second fluorocarbon resin layer may contain photocatalysts.

Preferably, the photoxidation ability of the surface of the fluorocarbon resin layer containing photocatalysts of a photocatalyst sheet is such that, when oleic glyceride is coated on said surface of a fluorocarbon resin layer, and ultraviolet light is irradiated onto said surface by $1mW/cm^2$, the rate of decomposition of said oleic glyceride is $0.1mg/cm^2$ day or more.

Preferably, the photoreduction ability of the surface of the fluorocarbon resin layer containing photocatalysts of a photocatalyst sheet is such that, when said photocatalyst sheet is soaked in the 0.1N (normal) silver nitrate aqueous solution, and ultraviolet light is irradiated for one minute onto the surface of said fluorocarbon resin layer containing said photocatalysts by $1mW/cm^2$, the color difference change is $\triangle E^* \geqq 1$.

The contact angle of the surface of the fluorocarbon resin layer cotaining photocatalysts is preferably about 90 degrees or more. The thickness of the fluorocarbon resin layer cotaining photocatalysts is preferably 1 μm or more.

[0014]

[0015] In order to achieve the above mentioned first purpose, the second embodiment of the present invention is characterized in that the structure of a photocatalyst sheet of the present invention comprises: a substrate; a first fluorocarbon resin layer coated on the substrate; a second fluorocarbon resin layer coated on the first fluorocarbon resin layer; and a third fluorocarbon resin layer containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on the second fluorocarbon resin layer, of which the third fluorocarbon resin layer has lower melting point than the first fluorocarbon resin layer, the photocatalysts have the part exposed on the third fluorocarbon resin layer, and the ratio of the photocatalysts in the third fluorocarbon resin layer is 10 – 60 weight %, and the third fluorocarbon resin layer is thermally weldable, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate.

In order to achieve the above mentioned second purpose, the third embodiment of the present invention is such that the structure of a photocatalyst sheet of the present invention comprises: a substrate; a first fluorocarbon resin layer coated on the substrate; a second fluorocarbon resin layer coated on the first fluorocarbon resin layer; and a third fluorocarbon resin layer containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on the second fluorocarbon resin layer, of which the third fluorocarbon resin layer has lower melting point than the first fluorocarbon resin layer, the photocatalysts have the part exposed on the third fluorocarbon resin layer, and the ratio of the photocatalysts in the third fluorocarbon resin layer is 10 – 60 weight %, the surface of the fluorocarbon resin layer containing photocatalysts of the photocatalyst sheet is water repellent upon ultraviolet light irradiation, and the third fluorocarbon resin layer is thermally weldable, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate.

In the embodiment described above, the substrate is preferably made of glass fiber, and its surface state is either smooth, rough, or mesh-like. The first fluorocarbon resin layer is made of PTFE, the second fluorocarbon resin layer is made of either one of PTFE, FEP, or PFA, and the third fluorocarbon resin layer is made of FEP.

Preferably, the melting point of the second fluorocarbon resin layer may be as high as, or higher than, that of the third fluorocarbon resin layer. In this case, the second and the third fluorocarbon resin layers may be made of identical fluorocarbon resin.

Preferably, the melting point of the first fluorocarbon resin layer may be as high as, or higher than, that of the second fluorocarbon resin layer. In this case, the first and the second fluorocarbon resin layers may be made of identical fluorocarbon resin. Also, the second fluorocarbon resin layer may contain photocatalysts.

In order to achieve the above mentioned second purpose, the fourth embodiment of the present invention is characterized in that a photocatalyst sheet of the present invention has a substrate which is coated with fluorocarbon resin layers, at least its uppermost layer is coated with the fluorocarbon resin layer containing photocatalysts, and the surface of the fluorocarbon resin layer containing photocatalysts is water repellent upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate.

By each of the embodiments described above, the combination of the first to the third fluorocarbon resin layers, which gives excellent thermal weldability between photocatalyst sheets, can be readily obtained. Especially when a substrate is glass fiber, the first fluorocarbon resin layer is PTFE, the second fluorocarbon resin layer is either one of PTFE, FEP, or PFA, and the third fluorocarbon resin layer is FEP, since FEP as the uppermost fluorocarbon resin layer containing photocatalysts has lower melting point than PTFE as the first fluorocarbon resin layer on the substrate side, photocatalyst sheets can be easily thermally welded to each other. Also, high antifouling property is given by the redox

reaction when the photocatalysts exposed on the surface of said third fluorocarbon resin are irradiated with the ultraviolet light involved in the sunbeam. Further, the surface of the fluorocarbon resin layer containing photocatalysts of the uppermost layer of a photocatalyst sheet can be given water repellency upon ultraviolet light irradiation.

invention is that of a photocatalyst sheet, which comprises: a substrate made of glass fiber; a first fluorocarbon resin layer made of PTFE coated on the substrate; a second fluorocarbon resin layer made of either one of PTFE, FEP, or PFA coated on the first fluorocarbon resin layer; and a third fluorocarbon resin layer made of FEP containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on the second fluorocarbon resin layer, of which the photocatalysts have the part exposed on the third fluorocarbon resin layer, the ratio of the photocatalysts in the third fluorocarbon resin layer is 10 – 60 weight %, and the surface of the fluorocarbon resin layer containing the photocatalysts of the photocatalyst sheet is water repellent upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20 mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate, and said method is characterized to comprise a process of coating the first fluorocarbon resin layer on the substrate, a process of coating the second fluorocarbon resin layer on the first fluorocarbon resin layer, and a process of coating the third fluorocarbon resin layer containing photocatalysts on the second fluorocarbon resin layer.

Another manufacturing method of a photocatalyst sheet of the present invention is that of a photocatalyst sheet, which is characterized to comprise: a substrate made of glass fiber; a first fluorocarbon resin layer made of PTFE coated on the substrate; a second fluorocarbon resin layer made of either one of PTFE, FEP, or PFA coated on the first fluorocarbon resin layer; and a third fluorocarbon resin layer made of FEP containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on the second fluorocarbon resin layer, of which the photocatalysts have the part exposed on the third fluorocarbon resin layer, the ratio of the photocatalysts in the third fluorocarbon resin layer is 10 – 60 weight %, and the surface of the fluorocarbon resin layer containing said photocatalysts of the photocatalyst sheet is water repellent upon ultraviolet light irradiation, and when photocatalyst sheets are thermally welded to each other, and if the welded part is peeled off at the rate of 20

mm/min, then whole of the fluorocarbon resin layer is completely peeled off from the substrate, and said method is characterized to comprise a process of coating the first fluorocarbon resin layer on the substrate, a process of coating the second fluorocarbon resin layer containing photocatalysts on the first fluorocarbon resin layer, and a process of coating the third fluorocarbon resin layer containing photocatalysts on the second fluorocarbon resin layer.

By said method of manufacturing, coating the third fluorocarbon resin layer containing photocatalysts on the uppermost surface of the substrate makes thermal welding easy, and the photocatalysts exposed on the third fluorocarbon resin layer have water repellency upon ultraviolet light irradiation, thereby a photocatalyst sheet having antifouling property can be manufactured at low cost.

Further, in case that the second fluorocarbon resin layer contains photocatalysts, since both the second and the third fluorocarbon resin layers contain photocatalysts, a photocatalyst sheet having excellent thermal weldability and antifouling property can be manufactured.

[0019] As for the embodiment described above, the coating process of the first fluorocarbon resin layer, the second fluorocarbon resin layer either containing or not containing the photocatalyst, and the third fluorocarbon resin layer containing the photocatalyst is preferably conducted continuously. By this embodiment the photocatalyst sheet comprising the first to the third fluorocarbon resin layer continuously coated on the substrate and the third fluorocarbon resin layer containing the photocatalyst on the outermost surface may be efficiently manufactured.

[0020] As for the embodiment described above, the third fluorocarbon resin layer containing the photocatalyst may be coated on the substrate that has been coated beforehand with the first and the second fluorocarbon resin layers. By this embodiment, the manufacture of the photocatalyst sheet may be possible by first preparing the substrate coated with the first and the second fluorocarbon resin layers beforehand and by coating the third fluorocarbon resin layer containing the photocatalyst anytime later.

[0021] The coating process of the third fluorocarbon resin layer

containing the photocatalyst characteristically comprises: a coating process of the dispersion for fluorocarbon resin containing the titanium oxide fine particles as the photocatalyst on the second fluorocarbon resin

Claims:

What is claimed is:

1. (currently amended) A photocatalyst sheet characterized in that it comprises:

a substrate made of glass fiber;

a first fluorocarbon resin layer made of PTFE coated on said substrate;

a second fluorocarbon resin layer made of either one of PTFE, FEP, or PFA coated on said first fluorocarbon resin layer; and

a third fluorocarbon resin layer made of FEP containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on said second fluorocarbon resin layer;

of which said photocatalysts have the part exposed on said third fluorocarbon resin layer;

the ratio of said photocatalysts in said third fluorocarbon resin layer is 10 – 60 weight %; and

the surface of the fluorocarbon resin layer containing said photocatalysts of said photocatalyst sheet is water repellent upon ultraviolet light irradiation, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate.

2. A photocatalyst sheet as set forth in claim 1, characterized in that the surface state of said substrate made of glass fiber is either smooth, rough, or mesh-like.

3. A photocatalyst sheet as set forth in claim 1, characterized in that photocatalysts are contained in said second fluorocarbon resin layer.

4. A photocatalyst sheet as set forth in claim 1, characterized in that the photoxidation ability of the surface of said fluorocarbon resin layer containing photocatalysts of said photocatalyst sheet is such that,

when oleic glyceride is coated on said surface of fluorocarbon resin layer, and an ultraviolet light is irradiated onto said surface by 1mW/cm^2, the rate of decomposition of said oleic glyceride is 0.1mg/cm^2 day or more.

5. A photocatalyst sheet as set forth in claim 1, characterized in that the photoreduction ability of the surface of said fluorocarbon resin layer containing photocatalysts of said photocatalyst sheet is such that, when said photocatalyst sheet is soaked in the 0.1N (normal) silver nitrate aqueous solution, and ultraviolet light is irradiated for one minute onto the surface of said fluorocarbon resin layer containing photocatalysts by 1mW/cm^2, the color difference change is $\triangle E^* \geqq 1$.

6. A photocatalyst sheet as set forth in claim 1, characterized in that the contact angle of the surface of said fluorocarbon resin layer containing photocatalysts is about 90 degrees or more.

7. A photocatalyst sheet as set forth in claim 1, characterized in that the thickness of said fluorocarbon resin layer containing photocatalysts is 1 μ m or more.

8. (currently amended) A photocatalyst sheet characterized in that it comprises:

a substrate;

a first fluorocarbon resin layer coated on said substrate;

a second fluorocarbon resin layer coated on said first fluorocarbon resin layer; and

a third fluorocarbon resin layer containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on said second fluorocarbon resin layer;

of which said third fluorocarbon resin layer has lower melting point than said first fluorocarbon resin layer;

said photocatalysts have the part exposed on said third fluorocarbon resin layer;

the ratio of said photocatalysts in said third fluorocarbon resin layer is 10 – 60 weight %; and

said photocatalyst sheet can be thermally welded to said third fluorocarbon resin layer, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate.

9. (currently amended) A photocatalyst sheet characterized in that it comprises:

a substrate;

a first fluorocarbon resin layer coated on said substrate;

a second fluorocarbon resin layer coated on said first fluorocarbon resin layer; and

a third fluorocarbon resin layer containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on said second fluorocarbon resin layer;

of which said third fluorocarbon resin layer has lower melting point than said first fluorocarbon resin layer;

said photocatalysts have the part exposed on said third fluorocarbon resin layer;

the ratio of said photocatalysts in said third fluorocarbon resin layer is 10 – 60 weight %;

the surface of the fluorocarbon resin layer containing said photocatalysts of said photocatalyst sheet is water repellent upon ultraviolet light irradiation, and

said photocatalyst sheet can be thermally welded to said third fluorocarbon resin layer, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate.

10. A photocatalyst sheet as set forth in claim 8 or 9, characterized in that said substrate is made of glass fiber, its surface state is either smooth, rough, or mesh-like, said first fluorocarbon resin layer is made of PTFE, said second fluorocarbon resin layer is either one of PTFE, FEP, or PFA resin layer, and said third fluorocarbon resin layer is made of FEP.

11. A photocatalyst sheet as set forth in claim 8 or 9, characterized in that the melting point of said second fluorocarbon resin layer is as high as, or higher than, that of said third fluorocarbon resin layer.

12. A photocatalyst sheet as set forth in claim 11, characterized in that said second and said third fluorocarbon resin layers are made of identical fluorocarbon resin.

13. A photocatalyst sheet as set forth in claim 8 or 9, characterized in that the melting point of said first fluorocarbon resin layer is as high as, or higher than, that of said second fluorocarbon resin layer.

14. A photocatalyst sheet as set forth in claim 13, characterized in that said first and said second fluorocarbon resin layers are made of identical fluorocarbon resin.

15. (deleted)

16. (deleted)

17. (deleted)

18. (deleted)

19. (currently amended) A photocatalyst sheet comprising a substrate, a fluorocarbon resin layer coated on said substrate, and at least an uppermost layer coated with a fluorocarbon resin layer containing photocatalysts, characterized in that a surface of said fluorocarbon resin layer containing photocatalysts is water repellent upon ultraviolet light irradiation, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate.

25. (currently amended) A manufacturing method of a photocatalyst sheet, which comprises:

a substrate made of glass fiber;

a first fluorocarbon resin layer made of PTFE coated on said substrate;

a second fluorocarbon resin layer made of either one of PTFE, FEP, or PFA coated on said first fluorocarbon resin layer; and

a third fluorocarbon resin layer made of FEP containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on said second fluorocarbon resin layer;

of which said photocatalysts have the part exposed on said third fluorocarbon resin layer, the ratio of said photocatalysts in said third fluorocarbon resin layer is 10 – 60 weight %, and the surface of said fluorocarbon resin layer containing said photocatalysts of said photocatalyst sheet is water repellent upon ultraviolet light irradiation, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate, and

said method being characterized to comprise

a process of coating the first fluorocarbon resin layer on the substrate;

a process of coating the second fluorocarbon resin layer on said first fluorocarbon resin layer; and

a process of coating the third fluorocarbon resin layer containing photocatalysts on said second fluorocarbon resin layer.

26. (currently amended) A manufacturing method of a photocatalyst sheet, which comprises:

a substrate made of glass fiber;

a first fluorocarbon resin layer made of PTFE coated on said substrate;

a second fluorocarbon resin layer made of either one of PTFE, FEP, or PFA containing photocatalysts coated on said first fluorocarbon resin

layer; and

a third fluorocarbon resin layer made of FEP containing photocatalysts consisting at least of titanium oxide (TiO_2, TiO_3) coated on said second fluorocarbon resin layer;

of which said photocatalysts have the part exposed on said third fluorocarbon resin layer, the ratio of said photocatalysts in said third fluorocarbon resin layer is 10 – 60 weight %, and the surface of said fluorocarbon resin layer containing said photocatalysts of said photocatalyst sheet is water repellent upon ultraviolet light irradiation, and when said photocatalyst sheets are thermally welded to each other, and if said welded part is peeled off at the rate of 20 mm/min, then whole of said fluorocarbon resin layer is completely peeled off from said substrate, and

said method being characterized to comprise

a process of coating the first fluorocarbon resin layer on the substrate;

a process of coating the second fluorocarbon resin layer containing photocatalysts on said first fluorocarbon resin layer; and

a process of coating the third fluorocarbon resin layer containing photocatalysts on said second fluorocarbon resin layer.

27. (deleted)

28. (deleted)

29. A manufacturing method of a photocatalyst sheet as set forth in claim 25 or 26, characterized in that coating processes are continuous for said first fluorocarbon resin layer, said second fluorocarbon resin layer, either containing or not containing the photocatalyst, and said third fluorocarbon resin layer containing the photocatalyst.